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AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

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FAA-99-6411-43

U.S. Department of Transportation, Dockets
Docket No. **FAA-1999-6411, 400**
Seventh Street SW., Room Plaza 401,
Washington DC 20590.

Ref: NPRM Notice 99-18

IN QUALIFIED SUPPORT

Ladies and Gentlemen:

The Air Line Pilots Association (ALPA), representing the safety interests of 55,000 professional airline pilots flying for 51 airlines in the United States and Canada, has reviewed the referenced NPRM. The NPRM contains a number of separate proposed actions affecting design approval holders of certain turbine-powered transport category airplanes, certain operators of those airplanes, and airworthiness standards for transport category airplanes. We understand these actions are the result of information gathered from accident investigations and service experience. This information indicates that unforeseen failure modes and lack of specific maintenance procedures on certain airplane fuel tank systems may result in degradation of design safety features intended to preclude ignition of vapors within the fuel tank.

One action proposed would require design approval holders of certain turbine-powered transport category airplanes to submit substantiation to the FAA that the design of the fuel tank system of previously certificated airplanes precludes the existence of ignition sources within the airplane fuel tanks. ALPA supports continuing airworthiness reviews and fully concurs with this initiative.

The NPRM would also require the affected design approval holders to develop specific fuel tank system maintenance and inspection instructions for any items in the fuel tank system that are determined to require repetitive inspections or maintenance, to assure the safety of the fuel tank system. Programs such as this that promote preventive maintenance actions as a means to ensure and enhance safe operations have repeatedly demonstrated their safety benefits and we support such actions.

ALPA strongly supports the FAA's position that despite compliance with the proposed flammability reduction portion of the rule the applicant must insure that "an ignition source could not result from a single failure, from each single failure in combination with each latent failure condition not shown to be extremely remote, and from all combinations of failures not shown to be extremely improbable." We believe that this requirement is absolutely essential.

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Fuel vapor flammability **and** ignition energy requirements are not well understood to date, Systems and **methods designed** to reduce flammability, while clearly beneficial, do not possess the reliability necessary to allow any relaxation in ignition source probability. Regardless of flammability reduction measures, **ALPA** believes that the probability of a flammable condition must be considered as one under all conditions.

The **NPRM** states that "In order to achieve the benefits.. **as** quickly as possible, the FAA has decided to proceed with **this** rulemaking with the applicability of the **SFAR limited to airplanes** with a maximum **certificated** passenger capacity of at least **30** or at least **7,500** pounds payload". The FAA explains that "compliance is not proposed for smaller **airplanes because** it is not clear at this time that the possible benefits for those airplanes would be commensurate with the costs involved". Additionally, the **FAA** ". . . **intends** to undertake a full regulatory evaluation of applying **these requirements** to (those **aircraft**) to **determine** the merits of subsequently extending the rule."

A significant segment of the commercial **transport fleet (certain regional airliners)** is currently excluded from this **rulemaking**, which is not in keeping with the stated goals of the 'Commuter Rule / One Level of Safety' initiative. **ALPA participated in the 1998 ARAC Fuel Tank Harmonization Working Group**, and appreciates the difficulties associated **with** addressing this portion of the fleet. However, it is imperative **that** an evaluation of this fleet segment still be accomplished.

Of concern to **ALPA is the** fact that in a subsequent portion of the **NPRM** the FAA argues that applying **the NPRM** to certain regional airliners ". . . **would** not significantly increase the **expected** quantitative **benefits because there** have been no in-flight fuel tank explosions of these airplanes." This reasoning is faulty in that it presumes that just because a problem has not yet occurred, a deficiency or **deficiencies** do not exist. **ALPA** is concerned that **the** FAA might **utilize** this faulty **reasoning** to eliminate the need **for any** follow-on activity to address this segment of the fleet.

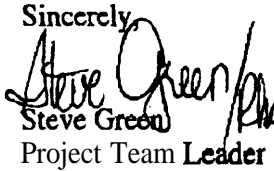
The **proposed wording of 14 CFR Paragraph 25.981(c)(1)** states that the **fuel tank** installation must **include** "means **to** minimize the **development** of flammable vapors in the **fuel** tanks...". The proposed rule is not sufficiently **detailed** to **ensure** that compliance can be achieved without having to resort to material which **has not** been published in the rule. **ALPA** is concerned that the proposed language is **sufficiently** vague to promote a lack of standardization in finding compliance with the regulation. Although **the** relevant material is available in the draft **Advisory Circular 25.981-2x**, **ALPA** is aware that Order **1320.46A**, "Advisory Circular System", states in part that "**ACs** may not be used to add to, interpret, or **relieve** a duty imposed by a Federal Aviation Regulation..." Our **concern** is that the wording of this rule **essentially requires an** interpretation **of "minimize"** from the relevant AC.

ALPA concurs with the FAA's position regarding the prevention of flammable vapors **within the** tank, although we strongly encourage FAA and industry to pursue this concept through research and development. We believe that the FAA's present intent as stated in Advisory Circular **25-981-2x**, "**to require** that the exposure to **formation** or presence of flammable vapors is equivalent to that of an **unheated wing tank** in the transport airplane being **evaluated**," is a **reasonable** objective. Our recommendation is that the FAA reword this proposed **rule** to clearly frame the intent within the rule itself. We believe that the wording would be more **specific** and **less prone**

to unusual circumstance if it **stated** that “a means must be provided to insure **that** the net heat balance within any tank will be equivalent to **that** of an **unheated** wing fuel **tank** during any portion of passenger carrying operation”. If an unheated wing fuel tank does not exist on a particular design, then one **should** be modeled and used as the **reference** standard for **all** tanks on that design.

However, **ALPA** also points out to the FAA that even with this rule in place, several circumstances might occur operationally in which even an unheated wing tank has a flammable **ullage** with a relatively low ignition energy threshold, and that these conditions may warrant attention through other rules in the future.

We agree that certain unsafe conditions have been identified and **concur with** the FAA proposed amendments to **14 CFR** with the exceptions noted above.

Sincerely,

Steve Green
Project Team Leader

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